

rider to place their foot on the other platform **121**. In addition, more rider weight is exerted on the wheel structure, reducing the risk that the wheel structure might tip over onto the rider's foot.

[0019] In different embodiments, depending on the tilt angle when mounting and dismounting the device, the location of pivot axes **141,142** may be farther inward within wheels **121,131**. In general, pivot axis **141,142** may be placed at a location within the wheel structure that does not cause the foot support to fold when only one of the rider's feet is in place. The optimal pivot axis location may vary slightly from embodiment to embodiment, but will be within the wheel structure.

[0020] Device **110** has left and a right vertical planes that touch the outside of tires **121,131**, respectively. The pivot axes **141,142** are preferably at or within the left and right side vertical planes. To say that an axis is within the wheel structure means that it is within the volume defined by these planes and the circumferential parts of tires that comprise the wheel structure. If there is only one tire, the vertical planes touch the two outer sides of that tire.

[0021] Wheel envelope refers to the volume defined the exterior of a given tire. It is the volume bounded by vertical planes touching the two sides of that tire and the outer circumferential parts of the tire.

[0022] The present invention is applicable not only to devices having a single wheel structure and two tires as shown in FIGS. 1-4, but also to a variety of device types which may differ in number of wheels or wheel structures, number of tires, self-balancing or not, and other variables.

[0023] While the invention has been described in connection with specific embodiments thereof, it will be understood that it is capable of further modification, and this application is intended to cover any variations, uses, or adaptations of the invention following, in general, the principles of the invention and including such departures from the present disclosure as come within known or customary practice in the art to which the invention pertains and as may be applied to the essential features hereinbefore set forth, and as fall within the scope of the invention and the limits of the appended claims.

1. An auto-balancing transportation device, comprising:
 - a wheel structure having at least a first tire and a motor that drives the wheel structure;
 - first and second foot platforms that are located on opposite sides of the wheel structure and that pivot between an in-use position and a stowed position;
 - a position sensor and a control circuit, the control circuit driving the motor towards auto-balancing the device based on data from the position sensor;
 - a first mounting arm that mounts the first foot platform to a first pivot axis and a second mounting arm that mounts the second foot platform to a second pivot axis;
 - wherein the first and second pivot axes are located within the wheel structure and the first and second mounting arms are located at least in part within the wheel structure; and
 - wherein, when the device is vertical and in the in-use position, the level of the first foot platform is below the level of the first pivot axis and the level of the second foot platform is below the level of the second pivot axis.

2. The device of claim 1, wherein the wheel structure includes a first rim to which the first tire is mounted and wherein the first pivot axis is located within an envelope of the first rim.

3. The device of claim 1, wherein the wheel structure includes a second tire, and the first and second tires are arranged in parallel.

4. The device of claim 3, wherein the first tire defines a first vertical plane that touches a side of the first tire furthest from the second tire, and the second tire defines a second vertical plane that touches a side of the second tire furthest from the first tire; and

wherein the first and second pivot axes are located between the first and second vertical planes.

5. The device of claim 1, wherein, when the device is in a vertical position, a line from the first axis vertically downward intersects the first tire.

6. An auto-balancing transportation device, comprising: a wheel structure, having a first tire and a second tire, and a motor that drives the wheel structure;

first and second foot platforms that are located on opposite sides of the wheel structure and that pivot between an in-use position and a stowed position;

a position sensor and a control circuit, the control circuit driving the motor towards auto-balancing the device based on data from the position sensor;

wherein the first foot platform is coupled at a first pivot axis and the second foot platform is coupled at a second pivot axis; and

wherein, when the device is positioned vertically, the first tire defines a first vertical plane that touches a side of the first tire furthest from the second tire, and the second tire defines a second vertical plane that touches a side of the second tire furthest from the first tire; and wherein the first and second pivot axes are located at or between the first and second vertical planes.

7. The device of claim 6, wherein the first and second tires define first and second wheel envelopes, respectively, and the first pivot axis is within the first wheel envelope and the second pivot axis is within the second wheel envelope.

8. The device of claim 6, further comprising a first mounting arm that mounts the first foot platform to the first axis and a second mounting arm that mounts the second foot platform to the second axis, and wherein the first and second mounting arms are located in part within the wheel structure.

9. The device of claim 8, wherein, when the device is vertical and in the in-use position, the level of the first foot platform is below the level of the first axis and the level of the second foot platform is below the level of the second axis.

10. An auto-balancing transportation device, comprising: a wheel structure, having a first tire and a second tire, and a motor that drives the wheel structure;

first and second foot platforms that are located on opposite sides of the wheel structure and that pivot between an in-use position and a stowed position;

a position sensor and a control circuit, the control circuit driving the motor towards auto-balancing the device based on data from the position sensor;

wherein the first foot platform is coupled at a first pivot axis and the second foot platform is coupled at a second pivot axis; and

wherein the first and second pivot axes are located within the wheel structure.